

The ESP/950 Electronic stereophone operates by passing a currentless, electrostatic charge onto opposing capacitor plates which move an intervening, almost mass-less, semi-conductive diaphragm in conformance with the electrical signal from the music source.

The ESP/950 is powered by the E/90 Amplifier which connects to any music source including compact disc and digital audio tape players. The E/90 uses Field Effect Transistors for high input impedance and outstanding signal sensitivity.

The E/90 Amplifier can be powered by either standard household current or the battery pack. For the first time, you can enjoy state-of-the-art audiophile sound in a portable stereophone.

The ESP/950 is covered by the Koss No-Questions-Asked Lifetime Limited Warranty. If anything ever happens to any part of your ESP/950 System, Koss will repair or replace that part, no questions asked.

#### IMPORTANT

To maximize the reproduction quality of the ESP/950 and protect your sound investment, please read and follow the set-up instructions carefully.

#### SET-UP INSTRUCTIONS

1. Carefully unpack your ESP/950 Electrostatic Stereophone System to insure that the system is complete and intact.

The ESP/950 Electrostatic Stereophone System includes:

\*ESP/950 Stereophone

(The earcup and headband assemblies are separate to allow convenient and protective packaging. To assemble refer to step 2 of the set-up instructions.)

\*E/90 Energizer/Amplifier

\*AD E/90 120 Volt AC Adapter (9VDC at 1A) (AD E/90-E 220 Volt AC Adapter for Europe)

\*Battery Supply Box (Batteries not included)

\*Stereophone Extension Cord

\*3.5 mm to 3.5 mm Stereo Connector Cable (Male to Male)

\*3.5 mm to RCA Connector Cable (Male to Male)

\*RCA to RCA Connector (Male to Male)

\*Calf Skin Carrying Case

2. Attach the right and left earcups to the headband assembly by holding in the headband release button located at the inside of the earcup yoke (See Figure 1). Insert the headband into the earcup yoke (See Figure 2).

3. Set the E/90 Energizer/Amplifier On/Off switch located on the front panel to "Off".

4. Turn the Acoustic Level Control to the full counterclockwise position.

5. Connect the custom 5 pin rectangular plug from the stereophone to the input on the front of the E/90 Energizer/Amplifier marked "Phones."

#### 6. FOR HOME USE

Plug the AC adapter into the jack marked "9VDC 1AMP Input" located on the back panel of the E/90

Energizer/Amplifier.

Plug the remaining end of the AC adapter into a "live" wall outlet.

#### FOR PORTABLE USE

Open Portable Battery Case and insert 6 C-size Batteries (Batteries Not Included)

Close battery case

Plug the jack connected to the battery case into the input on the back of the E/90 Energizer/Amplifier marked "9VDC Input".

#### CONNECTING THE SOUND SOURCE

7. You may connect the E/90 Energizer/Amplifier to your sound source with either the 3.5 mm to RCA connector cable or RCA to RCA connector cable. Check your sound source for the connector cable required.

NOTE: The RCA connectors are located on the back of the E/90 Energizer/Amplifier. When connecting RCA plugs, the red plug is for the right channel; the white plug is for the left channel. The 3.5 mm connector is located on the front of the E/90 Energizer/Amplifier.

8. Turn sound source on.

9. Switch the power switch on the E/90 Energizer/Amplifier to "ON". The LED on the front panel will illuminate.

10. Adjust the volume level on the sound source as required.

11. Slowly turn up Audio Level controls on the E/90 Amplifier until sound can be heard from the stereophones.

12. Turn Acoustic Level counterclockwise again and position the stereophones on your head.

13. Adjust Acoustic Level to desired level.

#### TROUBLE SHOOTING GUIDE

##### No Power/ No Sound

- \*Check AC power outlet.

- \*Check batteries for proper placement and power.

- \*Check to see that sound source and E/90 Energizer/Amplifier are "ON".

- \*Check Acoustic Level control on E/90. Turn clockwise.

- \*Re-check set-up instructions.

##### LED Does Not Light Or Is A Solid Red Color

- \*Check battery power. The LED on the E/90 Energizer/Amplifier will flash red as batteries run down. The LED will become a solid red when batteries are dead. If battery voltage is too low the LED will not come on.

##### Hum Heard Through The Stereophone

- \*Check placement of the E/90 Energizer/Amplifier and cables. Placement near a source of 60 Hz noise (such as a power amplifier or some high intensity lamps) may cause "60Hz hum". Relocate E/90 Unit.

- \*Check sound source components.

- \*Check the interconnecting cables for the poor connection. NOTE: Due to the ESP/950's low frequency bandwidth, hum not normally heard from your stereo system may not become apparent.

##### Sound From Only One Channel

- \*The Acoustic Level control on the E/90 Energizer/Amplifier is a dual concentric unit allowing balance adjustment between right and left channels. Turn both sections of the knob fully counterclockwise to a desired listening level.

- \*Check the interconnecting cables for a poor connection. NOTE: Before checking for a poor connection, turn unit "OFF".

- \*Check source components for right and left signals.

## How To Care For Your ESP/950 Stereophones

Avoid any foreign materials from entering the earcups of the ESP/950 or the connector openings of the E/90 Energizer/Amplifier. To avoid potential electrical shock, do not operate the ESP/950 and E/90 unit in a damp, rainy or moisture-filled environment.

To clean your unit, turn the E/90 unit "OFF" and disconnect from any power source (AD or DC). Gently clean the earcushions and surfaces of the ESP/950 and E/90 unit with a slightly dampened, soft cloth. Allow any moisture to completely evaporate before re-connecting and operating the system.

Never operate the system in the E/90 unit or ESP/950 earcups have been disassembled or mechanically tampered with.

## SPECIFICATIONS

### ESP/950

#### Physical Specifications

Size of earcup: Approximately 150 mm h x 100 mm w x 40 mm d (including cushions)

Cushions: Large foam filled leatherette type for high ambient noise isolation and conformance to facial structure.

Headband: Extendable, stainless steel band with self adjusting, pivoting yokes and headband release mechanism.

Headband Cover: Wide leatherette style vinyl with 12 mm thick polyethylene foam padding.

Yokes: Horizontal and vertical pivoting with integral headband lock and detach mechanism for convenient storage

Weight: 12.45 oz. (353 gm)

Cord Length: 47 inches (182.9 cm)

Extension cord length: 72 inches (182.9 cm)

#### Electroacoustical Specifications

Frequency response: 8 Hz to 35,000 Hz

Sensitivity: 104 dB, 100 Vrms differential input at 1 kHz

Diaphragm radiating surface area: 7 sq. in. (45.6 sq. cm)

Diaphragm: Ultra-low mass 1.5 micron C grade polyester film electronbeam coated with a proprietary semiconductive material 250 Å thick.

Acoustic Design principal: Circumaural open air design incorporating minimal acoustic damping.

### E/90 Energizer/Amplifier

#### Physical Specifications

Dimension: 65mm h x 110 mm w x 155 mm d

Weight: 17 oz. (482 gm)

#### Electrical Specifications

Frequency response: 1.6 Hz to 50,000Hz (-3dB points) 100 vrms differential output

Distortion (THD+NOISE): 0.001% at 1kHz and 100Vrms differential output

Input Impedance: 100k ohms

Input level: 1 Vrms (for full power output)

Voltage Amplification: 60 dB

Audio output voltage: 600 Vrms differential, 2300 Vrms push-pull with soft limiting

Channel Separation: - 80 dB at 1 kHz, 100 Vrms differential output

Signal to Noise: -100 dB at 100 Vrms output

Bias voltage supply: 600VDC

Signal Polarity: Absolute Phase (non-inverting)

Volume control: Dual concentric continuous audio taper high quality potentiometer with split shaft for balance

Indicator: Combination Power ON and battery condition dual-color LED

Switches: Power ON/OFF rocker switch

Input jacks: (a) RCA type (L & R); (b) 3.5 mm stereo; (c) AC/DC adapter/Battery pack

Power consumption: 320 mA DC current at normal listening levels.